UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,883	12/20/2004	Wenlin Zhang	68.0327	5296

35204 7590 03/25/2009

SCHLUMBERGER RESERVOIR COMPLETIONS
14910 AIRLINE ROAD
ROSHARON, TX 77583

EXAMINER	
WILKINS III, HARRY D	
ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
03/25/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

VSOLIS2@SLB.COM
ABrown15@rosharon.oilfield.slb.com
jalverson@slb.com

Office Action Summary	Application No.	Applicant(s)	
	10/518,883	ZHANG ET AL.	
	Examiner	Art Unit	
	Harry D. Wilkins, III	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admission of prior art in view of Estes et al (US 5,299,359) and Shishkin et al (US 4,891,115).

Applicant admits as prior art (see pages 1 and 2 of the specification) that corrosion detection of pipes, particularly oil well pipelines, was desired and known. The known technology required shut down of the oil well and replacement of the corroded pipe when corrosion was detected.

Estes et al teach (see figures 1, 2A and 2B, col. 1, lines 22-36 and col. 3, line 48 to col. 4, line 32) such an apparatus for measuring the extent of corrosion inside oil well pipelines. However, in similarity to Applicant's admitted prior art, there existed no feature in the invention of Estes et al to correct the corrosion issue while the pipeline was still in the oil well.

Thus, Applicant's admission and Estes et al teach a corrosion monitoring tool adapted for examining an interior surface of the pipe to determine the extent of any corrosion.

The admitted prior art and Estes et al fail to teach including (a) a surface treatment apparatus for cleaning the interior surface of the pipe and (b) a plating

apparatus adapted for plating a new surface on the interior surface of the pipe after cleaning.

Shishkin et al teach (see abstract, figure 13) an apparatus for in-situ repair of the interior surface of a pipe, the apparatus including a surface treatment apparatus (1, 4) for cleaning the interior surface of the pipe and a plating apparatus (combination of power source 45, plates 46 (acting as anodes) and blades 4 (acting to cathodically bias the pipe)) for plating a new surface on the interior surface of the pipe after the cleaning treatment.

Therefore, it would have been obvious to one of ordinary skill in the art to have integrated the known in-situ repair device of Shishkin et al into the down-hole corrosion detection device of Applicant's admission and Estes et al for the purpose of being able to make the necessary repairs to the corroded sections without having to physically remove the pipe from the oil well. This would have had the advantage of decreasing the amount of labor necessary and also the total amount of down time to correct the detected corrosion problems. The integration would have included attachment to and communication with the corrosion detection device to permit repair of the portions of the pipe which were suffering from damage.

The corrosion monitoring tool of Applicant's admission and Estes et al would have been capable of operating to detect corrosion on the already plated surface as it was being removed from the pipeline. In other words, the device was placed in the pipeline at the surface of the oil well, and it moved downward through the pipeline, correcting corrosion as needed. Once it reached the bottom of the pipeline, the device

would then be retracted upward to the surface. The corrosion detection device would have been capable of operating to detect corrosion on this upward journey.

Regarding claim 4, as above, Applicant's admission and Estes et al suggest the method step of examining an interior surface of a pipeline to determine the extent of any corrosion. Shishkin et al, as above, suggest performing the method steps of cleaning the interior surface of the pipeline and plating a new surface on the interior of the pipeline after the cleaning step. As indicated in the previous paragraph, the corrosion monitoring tool of Applicant's admission and Estes et al would have been capable of examining the interior surface of the pipeline on the return trip to the surface. It would have been obvious to one of ordinary skill in the art to have done so to ensure that the plating step had corrected all of the corrosion problems on the interior of the pipeline. Doing so would have been a simple quality check to also make sure that the plating apparatus was working properly since it was extremely difficult and time consuming to manual inspect the plated interior surface of the pipeline.

Regarding claims 6 and 7, the plating step of Shishkin et al was an electrolytic plating step, which is a subset of all chemical plating steps.

Regarding claim 8, although related to a different embodiment than shown in figure 13 of Shishkin et al, Shishkin et al do suggest an alternative method of performing a cleaning of the interior surface by (see col. 6, lines 44-62) using fluid jets so as to effect partial breakage (blasting) and removal of deposits from the interior surface of the pipeline. Therefore, it would have been obvious to one of ordinary skill in the art to have

effected additional cleaning of the interior surface of the pipeline as suggested by Shishkin et al for the purpose of enhancing the initial cleaning of the interior surface.

However, Shishkin et al fail to suggest a step of collecting the removed areas in a container.

It would have been obvious to one of ordinary skill in the art to have collected the removed areas in a container in order to make removal of the materials from the pipeline easier to prevent their reformation on other areas of the interior surface of the pipeline.

Regarding claim 9, Estes et al teach (see figures 1, 2A and 2B, col. 3, line 38 to col. 4, line 12) that the method of examining to determine the extent of corrosion included pressing one or more fingers (24, 28) against the interior of the pipeline, passing the fingers over the interior of the pipeline and the result of flexing in the fingers when a corroded area was encountered. The method included a transducer (60) capable of generating an electrical signal in response to the degree of flexing to show irregularities (corrosion) on the interior surface of the pipeline. Therefore, it would have been obvious to one of ordinary skill in the art to have performed the conventional method steps of Estes et al for determining the presence of absence of a corroded area.

3. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admission of prior art in view of Estes et al (US 5,299,359) and Shishkin et al (US 4,891,115) as applied to claim 1 above, and further in view of Copland et al (US 4,673,890).

As above, Applicant's admission, Estes et al and Shishkin et al teach the features of the claim 1.

Applicant's admission, Estes et al and Shishkin et al fail to teach or suggest using a sealing apparatus disposed between the different portions of the combined apparatus, such as between the corrosion monitoring tool and the surface treatment apparatus and between the surface treatment apparatus and the plating apparatus.

Copland et al teach (see figure 1 and col. 5, lines 1-39) packing sections within well bores in order to provide seals in the pipeline such that fluid is not transmitted from one compartment to another compartment.

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the sealing structure of Copland et al into the apparatus of Applicant's admission, Estes et al and Shishkin et al for the purpose of preventing fluid from being transmitted from one area to another. In particular, it would have been obvious to have sealed off the surface treatment apparatus from the corrosion monitoring tool to prevent any debris from the cleaning treatment from negatively affecting the corrosion monitoring tool, as well as to have sealed off the surface treatment apparatus from the plating apparatus to prevent any debris from the cleaning treatment becoming lodged on the interior surface again during the plating treatment.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admission of prior art in view of Estes et al (US 5,299,359) and Shishkin et al (US 4,891,115) as applied to claim 4 above, and further in view of Hoyle et al (US 5,036,945).

As above, Applicant's admission, Estes et al and Shishkin et al teach the features of the claim 4.

Applicant's admission, Estes et al and Shishkin et al fail to teach or suggest that the examination steps included propagating a compressional or shear wave through one or more corroded areas on the interior of the pipe, receiving the waves from the interior of the pipe and generating a record of the received waves representative of the corroded areas.

Hoyle et al teach (see figures 1-4 and 12A, col. 1, lines 10-15 and col. 4, line 20 to col. 5, line 44 and col. 11, lines 48-61) an alternative method of examining the interior surface of a pipeline to that disclosed (and discussed with respect to claim 9 above) by Estes et al. The method includes transmission (propagation) of a compressional or shear wave against an interior surface of a pipeline of an oil well, receiving the waves from the interior surface and generating an electrical signal for generating a record of the waves representative of the interior surface areas.

Therefore, substitution of the surface examination method of Hoyle et al for the surface examination method of Estes et al would have been obvious to one of ordinary skill in the art because the simple substitution of the known examination method of Hoyle et al for the examination method of Estes et al obtained no more than the expected predictable results. See MPEP 2143 (8th edition, rev. 6, July 2008).

Response to Arguments

5. Applicant's arguments filed 18 February 2009 have been fully considered but they are not persuasive. Applicant has argued that the combination of prior art fails to

suggest connection and communication between the corrosion monitoring tool and the surface treatment apparatus.

In response, see MPEP 2144.04.V.B. Integration of the surface treatment apparatus of Shiskin et al and the corrosion monitoring tool of APA and Estes et al does not more than provide the functionality of both devices on a single device.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/
Primary Examiner, Art Unit 1795

hdw